ENTRY OF AMENDMENT

The above amendments should be entered because they adopt certain suggestions by the Examiner in the last Office Action. These amendments were not previously made because the final rejection first addressed the wording of the claims amended.

REMARKS

Claims 10, 11, 16, and 18 are pending.

REPLY TO REJECTIONS

First Rejection

Claims 10, 11, 16, and 18 were rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the Specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors at the time the application was filed had possession of the claimed invention. This rejection is traversed.

With respect to claims 10, 11, and 16, the claims have been amended as suggested in the Office Action.

With respect to claim 18, as no reasons were given why this claim was rejected under 35 U.S.C. § 112, first paragraph, it must be assumed that the inclusion of claim 18 was a typing error on the part of the Patent Office.

For the reasons set forth above, the Examiner is requested to reconsider and withdraw the rejection of the claims under 35 U.S.C. § 112, first paragraph.

Second Rejection

Claim 16 was rejected under 35 U.S.C. § 112, second paragraph, for the reasons set forth on page 3 of the Office Action.

This claim has been amended and now does comply with 35 U.S.C. § 112, second paragraph.

For the reasons set forth above, the Examiner is requested to reconsider and withdraw the rejection of the claim under 35 U.S.C. § 112, second paragraph.

Third Rejection

Claims 10, 11, 16, and 18 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Shiraiwa (U.S. Patent No. 5,273,423) previously applied. It was asserted that the previous rejections were maintained. Additionally, in the heading under "Response to Arguments", the Office Action asserted certain arguments in answer to the arguments in the last reply.

The Office Action (hereinafter **"OA"**) asserts,

"It is noted for the record that Fig. 2 describes several exhaust tubes 32, 32b, 32c and 32d (col. 5 lines 5-10) which is similar to applicants' claimed features (also shown in drawings Fig. 2 as 121, 120 and 122)." Therefore, the OA is using the element 32 to characterize only one of Applicant's recited elements.

Element 32b of Shiraiwa is similar to the applicants' local exhaust and element 32 is the chamber exhaust. Therefore, Shiraiwa teaches both local and chamber exhausts.

Judging from this statement the OA appears to assert that 121, 120 and 122 in Fig. 2 includes both local and chamber exhausts. However, none of 121, 120 and 122 includes a local exhaust. In the present embodiment, the local exhausts are 20, 21, 22.

Further, in Shiraiwa, the element 32b is not the local exhaust for locally exhausting the dust generating portion of the moving mechanism provided in the load lock chamber. The element 32b is used only when the cassette chamber 61 is exhausted. As disclosed in column 5, lines 49-66, the valve of the gas exhaust tube 32b is opened only when the vacuum is created inside the cassette chamber 61. After that, the valve of the gas exhaust tube 32b is closed and the N_2 gas is introduced into the cassette chamber 61. Then the gate between the cassette chamber 61 and the transfer chamber 60, and between the load lock chamber 8 and the transfer chamber 60 are opened to transfer the wafer cassette 63 to the wafer boat 18 in the load lock chamber 8. That is, the gas exhaust tube 32b is never used to locally exhaust the dust generating portion of the moving mechanism provided in the load lock chamber 8.

The OA further states,

"Applicants' argue that w.r.t claim 16 their recited features namely the second vacuum exhaust line is connected to processing chamber and the first vacuum exhaust line and a third vacuum exhaust line being connected to load lock chamber and the first vacuum exhaust line is not taught by Shiraiwa.

As stated above, the connections of the second and third vacuum chambers recited above and new matter and unless the Applicants' can show

support in the original specification constitute new matter and will not be entered."

However, these features are fully supported by the Specification as originally filed, and therefore are not new matter at all. In the Specification, as described on page 9, lines 8-13 of the specification as filed and as shown in Fig. 2 as filed, the second vacuum exhaust line (122) is connected with the substrate processing chamber (reaction oven 19). Therefore, the connection of the second vacuum exhaust line is fully supported by the specification as originally filed and no amendment was required. To alleviate the concerns expressed in the OA, claim 16 has been amended along the lines suggested in the OA.

The OA further states,

"Secondly, assuming *arguendo* that the recitation is not new matter, Shiraiwa discloses in Fig. 2 local exhaust line 32b connected to processing chamber 61 and first vacuum line 32, third exhaust line 32c is connected to load lock chamber 8 through gate and valve 28 (col. 2, lines 28-32) and first vacuum exhaust line 32."

However, 61 is not a processing chamber, 61 is a cassette chamber. Further, in the present invention, it is not a processing chamber to which the local exhaust is connected, it is a space covered by a cover for covering a dust generating portion of the moving mechanism to which the local exhaust is connected.

The OA continues to state,

"Applicants' argue that a single pump can be used in the invention as stated in the specification.

However, none of the claims recite the single vacuum pump element and therefore is not considered."

As "single pump" is not referred to in the claims, no further comment is necessary.

The OA states,

"Applicants' argue that the claimed cover (recited in claim 18) is different from the prior art because they (cover) are disposed on the wafers themselves but rather on the moving block portion better illustrated in Fig. 2 generation portion of said moving mechanism only."

However, in Shiraiwa, "Fig. 11 #18 top covering of the wafer boat or #26 flange" is apparently not a cover for covering a dust generation portion of the moving mechanism. The OA does not establish a *prima facie* case of obviousness at all. Further, Shiraiwa fails to disclose the claimed partition, and also fails to disclose the claimed gas flow through the slit in the partition.

For the reasons set forth above, the Examiner is requested to reconsider and withdraw the rejection of the claims under 35 U.S.C. § 103.

CONCLUSION

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Elliot A. Goldberg (Reg. No. 33,347) at the telephone number of (703) 205-8000, to

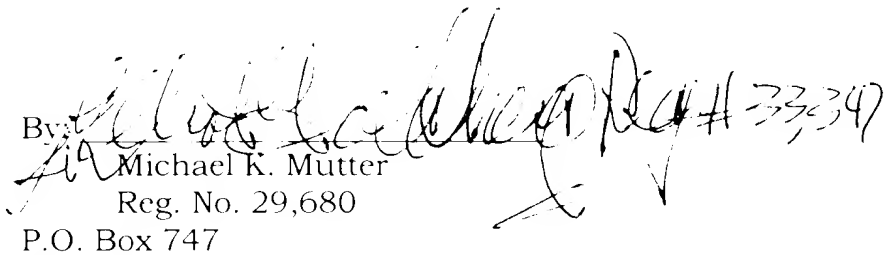
conduct an interview in an effort to expedite prosecution in connection with the present application.

Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), Applicant(s) respectfully petition(s) for a three (3) month extension of time for filing a reply in connection with the present application, and the required fee of $920.00 is attached hereto.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully Submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP



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MKM/EAG/sjl

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS

The claims have been amended as follows:

10. (Five Times Amended) A substrate processing apparatus comprising:

a substrate processing chamber for processing a substrate;

a load lock chamber;

a gas supply for supplying gas into said load lock chamber;

a chamber exhaust for exhausting said load lock chamber, said chamber exhaust including an atmospheric pressure vent line and a vacuum exhaust line, said vacuum exhaust line connected to said load lock chamber and to be connected to a vacuum pump, one end of said atmospheric pressure vent line being an open end and the other end of said atmospheric pressure vent line being connected [with said load lock chamber] to the vacuum exhaust line;

a moving mechanism provided in said load lock chamber for moving said substrate;

a local exhaust for locally exhausting a dust generating portion of said moving mechanism;

flow rate regulators, respectively provided in said gas supply and said local exhaust, for controlling, during movement of said substrate by said moving mechanism, an amount of gas supplied by said gas supply into said load lock chamber to be greater than an exhaust amount from said local

exhaust so that the gas supplied by said gas supply is exhausted by said local exhaust and said chamber exhaust;

a first valve disposed at an intermediate portion of said vacuum exhaust line;

a second valve disposed at an intermediate portion of said atmospheric pressure vent line;

a controller, for controlling said first and second valves such that during movement of said substrate by said moving mechanism, said first valve is closed and said second valve is opened; and

a pressure detector for detecting pressure in said load lock chamber.

11. (Five Times Amended) A substrate processing apparatus comprising:

a substrate processing chamber for processing a substrate;

a load lock chamber;

a gas supply for supplying gas into said load lock chamber;

a chamber exhaust for exhausting said load lock chamber, said chamber exhaust including an atmospheric pressure vent line and a vacuum exhaust line, said vacuum exhaust line connected to said load lock chamber and <u>to be</u> connected to a vacuum pump, one end of said atmospheric pressure vent line being an open end and the other end of said atmospheric pressure vent line being connected [with said load lock chamber] <u>vacuum exhaust line</u>,

a moving mechanism provided in said load lock chamber for moving said substrate;

a local exhaust for locally exhausting a dust generating portion of said moving mechanism;

a flow rate regulator in one of said gas supply, said chamber exhaust and said local exhaust;

a first valve disposed at an intermediate portion of said vacuum exhaust line;

a second valve disposed at an intermediate portion of said atmospheric pressure vent line;

a pressure detector for detecting pressure in said load lock chamber; and

a controller for controlling said first and second valves such that during movement of said substrate by said moving mechanism, said first valve is closed and said second valve is opened, and for controlling said flow rate regulator [n] accordance with a signal from said pressure detector to keep the inside of said load lock chamber at a higher pressure level than the atmospheric pressure during movement of said substrate by said moving mechanism.

16. (Four Times Amended) A substrate processing apparatus comprising:

a substrate processing chamber for processing a substrate;

a load lock chamber;

a gas supply for supplying gas into said load lock chamber;

a chamber exhaust connected with said load lock chamber for exhausting said load lock chamber;

a moving mechanism provided within said load lock chamber for moving said substrate;

a first vacuum exhaust line which is to be connected to a vacuum pump and which is connected with said load lock chamber;

a second vacuum exhaust line which is connected with said substrate processing chamber and said first vacuum exhaust line;

[a third vacuum exhaust line which is connected with said load lock chamber and said first vacuum exhaust line,]

a local exhaust for locally exhausting a dust generating portion of said moving mechanism, one end of said local exhaust being connected with said first vacuum exhaust line and the other end of said local exhaust being connected to a space covered by a cover for covering a dust generating portion of the moving mechanism [in proximity to the dust generating portion];

a first valve connected to an intermediate portion of said local exhaust;

a second valve provided at a [an intermediate] portion of said first [third] vacuum exhaust line between said load lock chamber and a connection portion of said first and second vacuum exhaust lines; and

a valve controller for controlling said first and second valves, said valve controller controlling said second valve to be closed during processing of

said substrate in said substrate processing chamber.

18. (Six Times Amended) A substrate processing apparatus comprising:

a substrate processing chamber for processing a substrate;

a load lock chamber;

a gas supply for supplying gas into said load lock chamber;

a chamber exhaust for exhausting said load lock chamber;

a moving mechanism provided in said load lock chamber for moving said substrate;

a cover for covering a dust generation portion of said moving mechanism;

a local exhaust for locally exhausting a dust generating portion of said moving mechanism;

a flow rate regulator in one of said gas supply, said chamber exhaust and said local exhaust;

a partition plate provided in said load lock chamber for partitioning said load lock chamber into a first region in which said substrate is moved and a second region in which said moving mechanism is positioned; and

a slit provided in said partition plate, wherein

said gas supply is connected with said load lock chamber at the first region of said load lock chamber in which said substrate moves,

said chamber exhaust is connected with said load lock chamber at the second region of said load lock chamber in which said moving mechanism

is provided,

said local exhaust being connected to a space covered by said cover, said chamber exhaust not being connected to said space, and

gas supplied by said gas supply into the first region in which said substrate is moved is made to flow into the second region in which said moving mechanism is positioned, and then to flow into said chamber exhaust and said local exhaust.